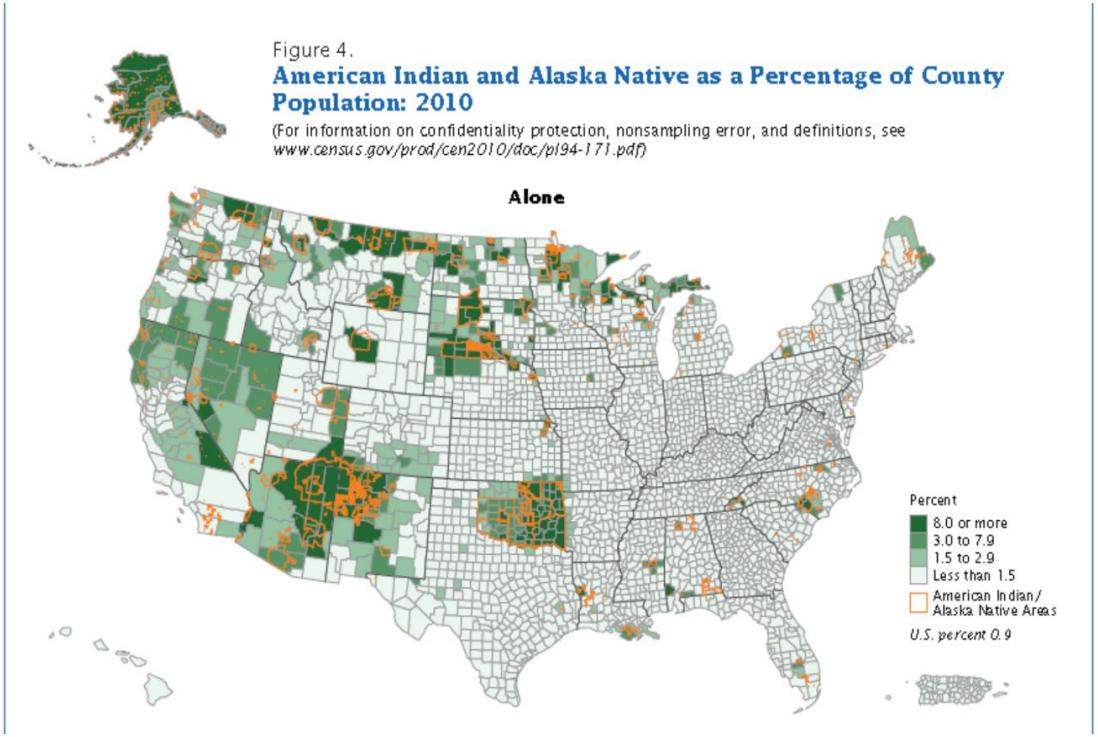
5th HEPATITIS C
TECHNICAL ADVISORY
GROUP
TAG Meeting

CHEROKEE NATION'S COMMUNITY-BASED HEPATITIS C ELIMINATION MODEL: NOVEMBER 2015 – JUNE 2019

Jorge Mera, MD, FACP

American Indian/Alaska Native (AI/AN) Statistics in the United States



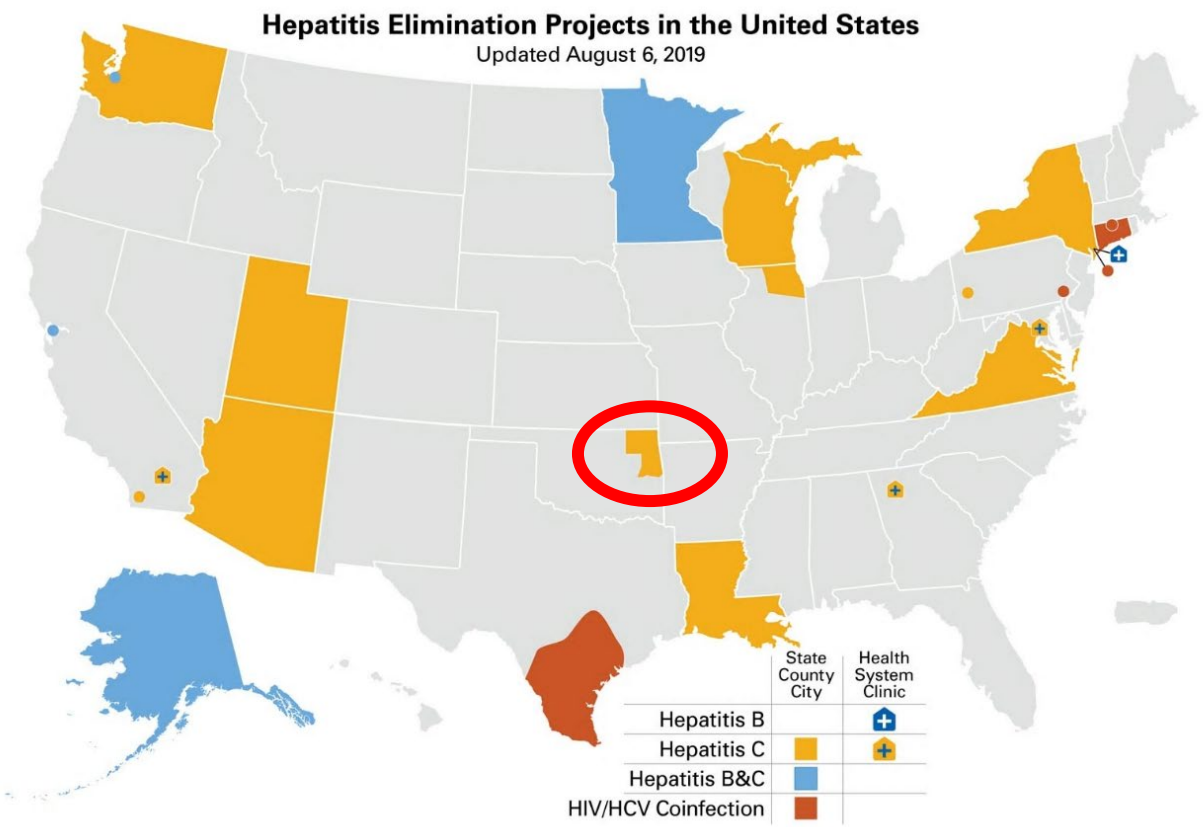
- 573 Federally recognized tribes
- 5.2 million AI/AN
- California and Oklahoma have the highest rate of AI/AN population

Hepatitis C in AI/AN in the US

- HCV disproportionately affects AI/AN[1,2]
- The AI/AN HCV **mortality** rate is 10.8 deaths per 100,000, compared to 4.5 per 100,000 nationally.
- From 2015 to 2016, **incidence** rates of acute HCV among AI/ANs rose from 1.8 to 3.1 cases per 100,000, twice the rate compared to Whites[1]
- The rates of **liver cancer** are significantly higher for AI/AN than the white population.[4]

1. Centers for Disease Control and Prevention. Surveillance for Viral Hepatitis: United States, 2016. Retrieved from https://www.cdc.gov/hepatitis/statistics/2016surveillance/commentary.htm
2. Center for Disease Control and Prevention. Deaths: Final Data for 2014. http://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_04.pdf
3. US Census Bureau. https://www.census.gov/www. Accessed Nov 2, 2019
4. Liver Cancer Incidence Among American Indian and Alaska Native Population, 2012–2016 USCS Data Brief, no. 13. Atlanta, GA: Centers for Disease Control and Prevention, US Department of Health and Human Services; 2019

HCV/HBV Elimination Projects in the USA



https://www.hhs.gov/hepatitis

Cherokee Nation: Overview

- Sovereign Nation within a Nation
- Second largest Indian Nation
- ~350,000 citizens
- Largest Tribal Health System in the USA

- Medically serves 130,000 AI/AN
- One central hospital
- 8 outlying clinics
- Unified electronic health record

AI/AN: American Indian/Alaskan Natives

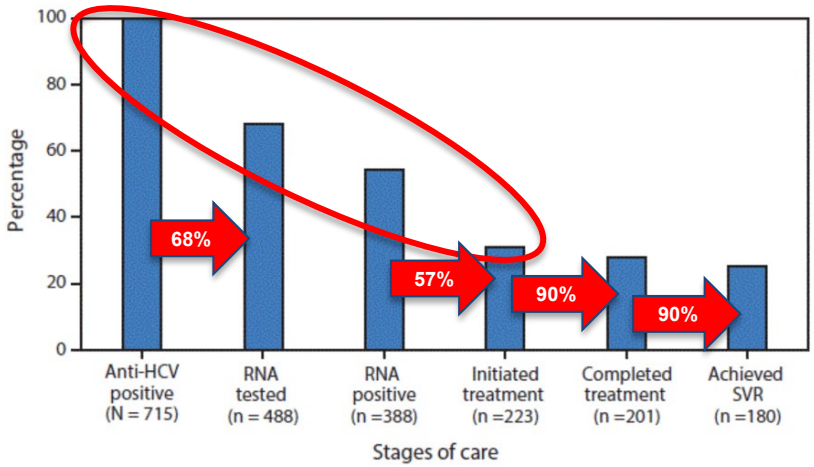
HCV in Cherokee Nation

HCV Prevalence and Risk Factors

- Prevalence 2012-2015 (n= 16,772)
  - HCV Antibody: **4.8%** (95% CI= 4.5-5.2)
  - HCV RNA: **3.1 %** (95% CI= 2.8-3.3)

- Risk Factors Survey 2015-2017* (n 25,127)
  (Preliminary Data)
  - Hx of IDU **PPR=9.78**, (95% BCI: 7.12-13.46)
  - Hx of incarceration: **PPR of 5.38** (95% BCI: 3.4-8.39)
  - Tattoos at a home, an unlicensed tattoo shop, or while incarcerated **PPR=1.56**, (95% BCI: 1.13-2.16)

HCV Cascade of Care 2012-2015



*Data obtained from 25,127 individuals aged 20-69 years who accessed care through the CNHS, and were screened for
HCV antibodies between 11/1/2015 and 10/31/2017 and completed a CNHS HCV Risk Factor form before they were screened.
IDU: Injection Drug Use, PPR: Prevalence Proportion Rations, CI=Confidence Interval, BCI=Bayesian Credible Interval

Mera J, Vellozzi C, Hariri S, et al. Identification and Clinical Management of Persons with Chronic Hepatitis C Virus Infection — Cherokee Nation, 2012–2015. MMWR Morb Mortal Wkly Rep 2016;65:461–466.

Cherokee Nation HCV Elimination Program

- HCV Elimination Program launched November 2015
  - Gilead Foundation Grant to financially support the program
  - DAAs obtained through Medicaid, Medicare, private insurers and patient assistance programs
- Goal: ***Eliminate HCV from individuals who accessed the Cherokee Nation Health Services***
- All individuals with current HCV infection offered treatment
- Partnerships
  - CDC: Technical assistance, Global Hepatitis Outbreak Surveillance Technology (GHOST)
  - University of Oklahoma
  - University of New Mexico
  - Oklahoma State Department of Health
  - Cardea

"As Native people and as Cherokee Nation citizens, we must keep striving to eliminate hepatitis C from our population."
Chief Bill John Baker

DAA: Direct Antiviral Agents

CNHS HCV Elimination Program 2015-2019: Goals and Targets

Program Goals

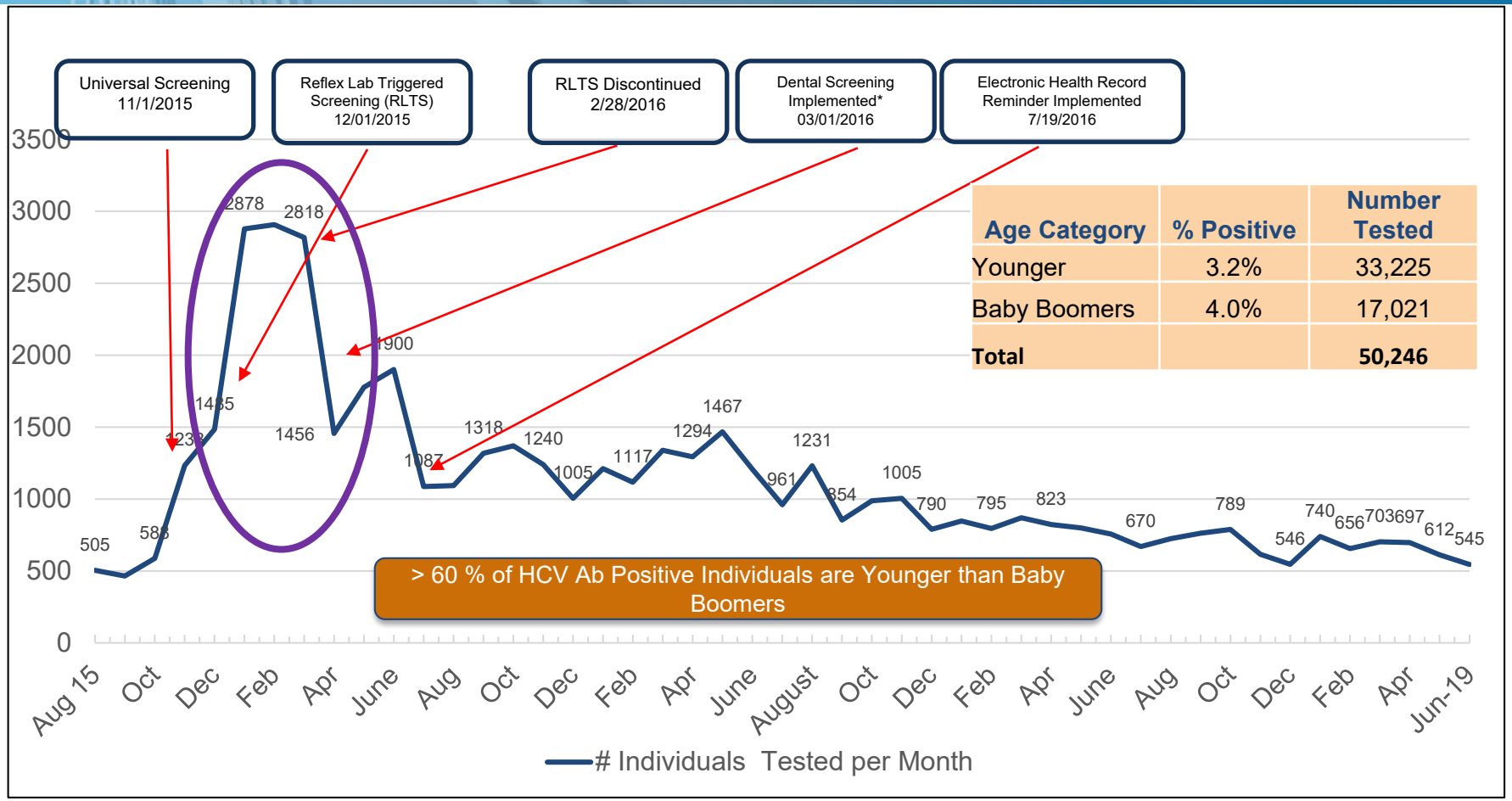
- Secure political commitment
- Expand the HCV screening program
- Expand HCV clinical capacity
- Decrease new HCV Infections

Program Targets

- **Population:** AI/AN who accessed the Cherokee Nation Health Services (CNHS)
  - Documented encounter with any department
- **Screen 85%** of those who accessed the CNHS
- **Evaluate 85%** of those who had a detectable HCV RNA by a provider trained in HCV management and treatment
- **Initiate HCV treatment in 85%** of those individuals evaluated
- **Document cure in 85%** of those who initiated treatment

AI/AN: American Indian/Alaska Native

CNHS HCV Screening Interventions 2015-2016



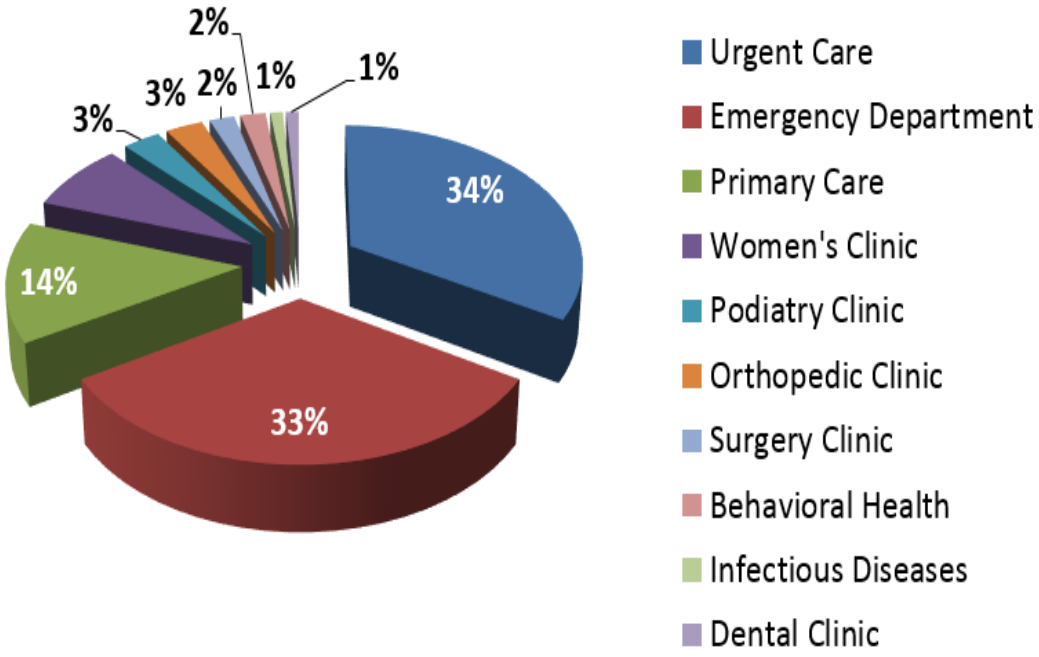
Age Category	% Positive	Number Tested
Younger	3.2%	33,225
Baby Boomers	4.0%	17,021
Total		**50,246**

CNHS: Cherokee Nation Health Services
*5520 individuals screened in dental clinics, seroprevalence was 2. % and 75% of HCV antibody (+) patients were younger than baby boomers
2054 individuals screened in the women's clinic with a Seroprevalence of 1.5%

CNHS HCV Screening Interventions 2015-2016

RLTS December 2015-February 2016

97 unique newly diagnosed HCV antibody (+) individuals



67% of patients were detected in the Urgent Care/Emergency Department

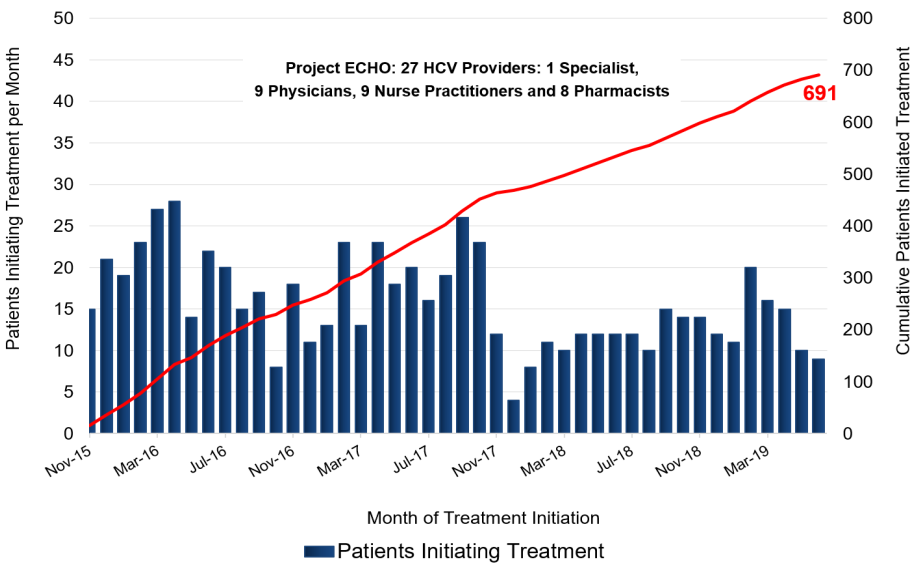
Lessons Learned

- Universal Screening and RLTS
  - Had the greatest impact in screening expansion
- Site expansion
  - Screening in Dental clinics identified patients that did not access primary care
  - UC/ED HCV prevalence highest among all sites (5.1%)
  - ***HCV screening not embraced beyond primary care***
- Reflex Antibody to RNA
  - Increased RNA testing from 68% to 85%
- Point of care testing
  - Increased engagement in care
  - ***In some areas, it complicates workflow***

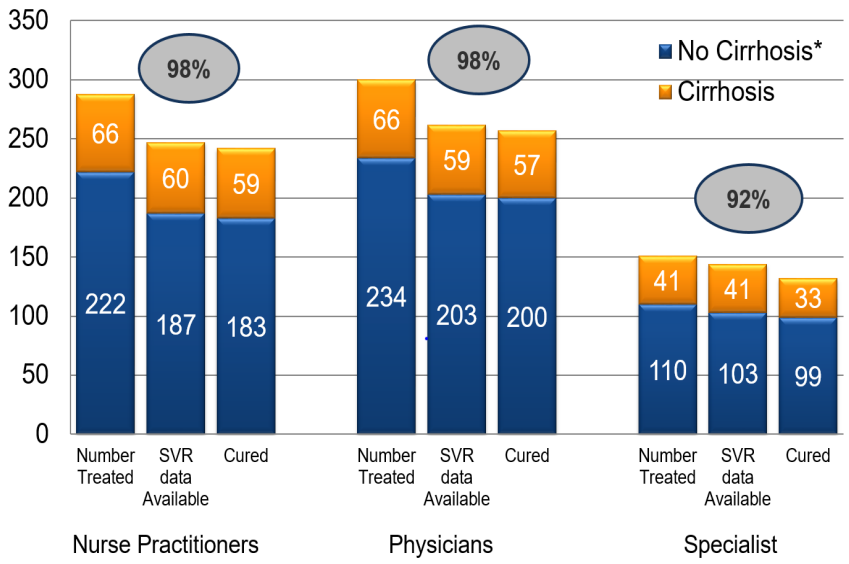
RLTS = reflex lab-triggered screening, OBGYN: Obstetrics and Gynecology, UC/ED: Urgent Care/Emergency Department

CNHS: Expansion of the HCV Primary Care Workforce: 1/2014 – 6/2019

Clinical Capacity Expansion:
Impact of projectECHO 11/2015-6/2019



CNHS HCV Cure Rates by Provider Type
1/2014-6/2018 (n= 739)



* Cirrhosis defined by Fib-4 score > 3.45

CNHS HCV Care Model: Lessons Learned

Universal Screening

Expanded to locations **outside of primary care:** UC/ED, women's clinic, dental clinic, inpatient units and community sites.

Patient Navigator

Staff members assigned to contact HCV positive individuals and arrange for follow-up testing and evaluation

HCV Evaluation

Non-adherence risk assessment

- Nurse
- BH counselor
- HCV/MAT provider
- Case Manager
  - DAA procurement
- Pharmacist
- Community Health Worker

HCV Treatment

All patients offered treatment. Including people who inject drugs

Community Health Worker

Home visits on patients determined to be high risk of non adherence

-Project ECHO:
Key in training PCPs
-Cure rates did not vary among provider type

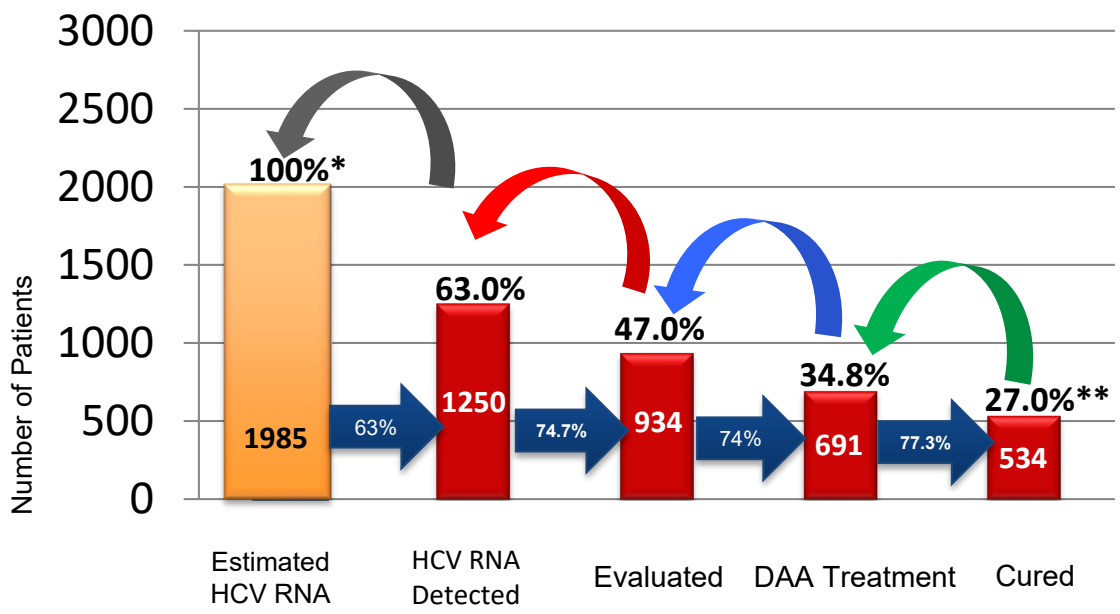
Once clinical capacity is met the rate limiting step to link to care and treat depends on other factors:

- ✓ Difficult to reach patients/doctors
- ✓ Patients with other medical priorities
- ✓ Patients with other socio/economic priorities
- ✓ Incarceration
- ✓ Delays in DAA acquisition

ECHO: Extended Community Health Outcomes, PCPs: Primary Care Providers, UC: Urgent Care, ED: Emergency Department, BH: Behavioral Health MAT: Medication Assisted Treatment, DAA: Direct Antiviral Agent

Cherokee Nation's Community-Based Hepatitis C Elimination Model: November 2015-June 2019 Results. Essex W, Feder M, Winters A, Nakatsukasa W, Mera J. Presented at AASLD 2019, Boston, USA.

Lessons Learned: CNHS HCV Cascade of Care: November 2015 – June 2019



Not accessing the CNHS
Accessing CNHS but screening not offered
Accessing CNHS screening site: Missed Opportunity

Lost to Follow-up
- Unable to reach
- Incarceration
- Other medical/social priorities

Waiting DAA approval/delivery
Lab/Diagnostic pending

On DAA treatment
Treatment completed, SVR12 pending
Missing SVR12 data

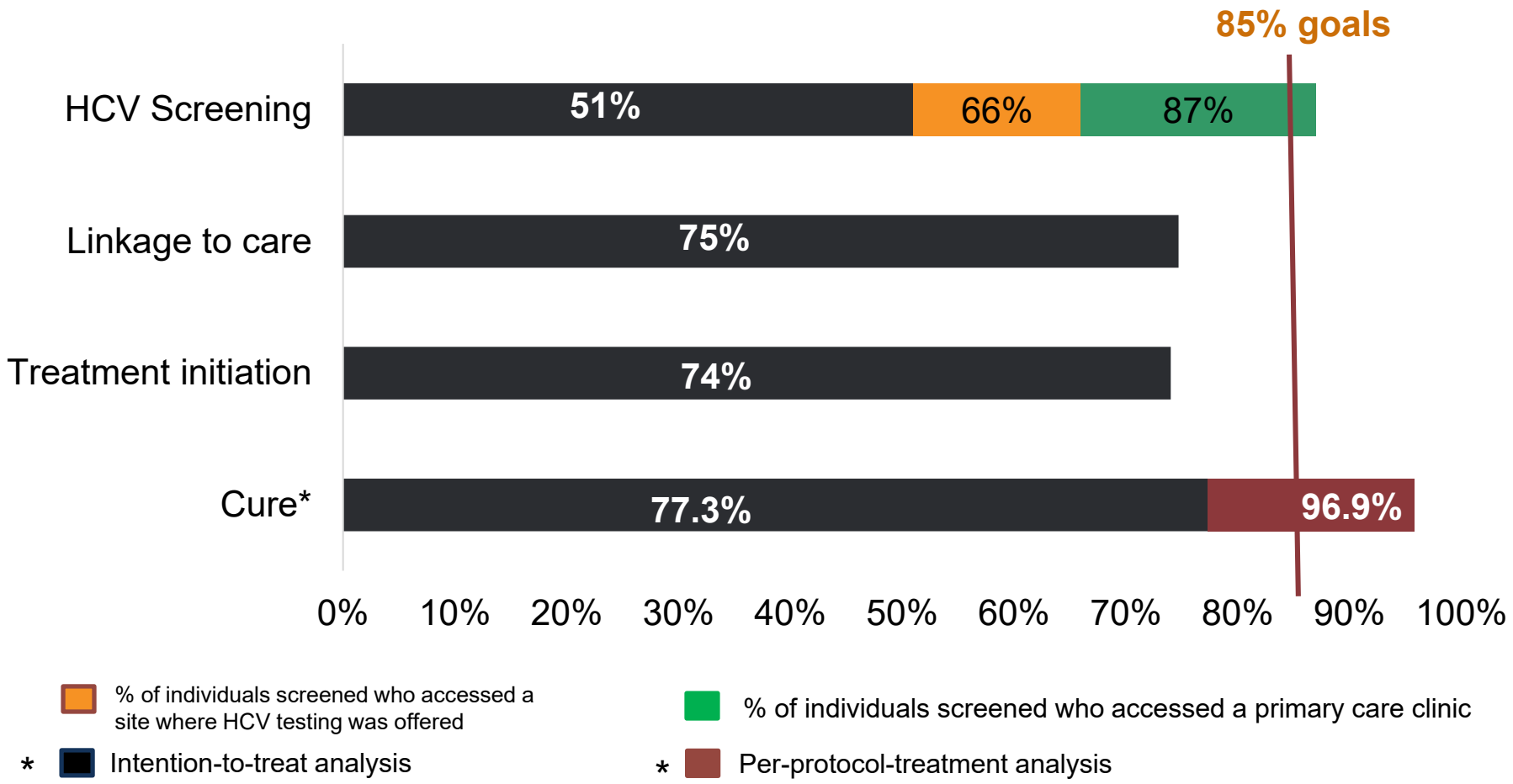
Cascade includes any individual who accessed the CNHS within the study period and had a detectable HCV RNA regardless of when the test was performed. Patients who were on DAA treatment initiated before November 1, 2015 were excluded.

* Estimated HCV RNA calculated based on 3.46% Seroprevalence of the 50,246 patients screened from Nov 1, 2015-June 30, 2019 adjusted by age and gender

** Cure % only reflects those patients who have completed treatment and have SVR12 cure data available. Intention to treat cure rates are 77.3 % and per protocol treatment rates are 96.9 %

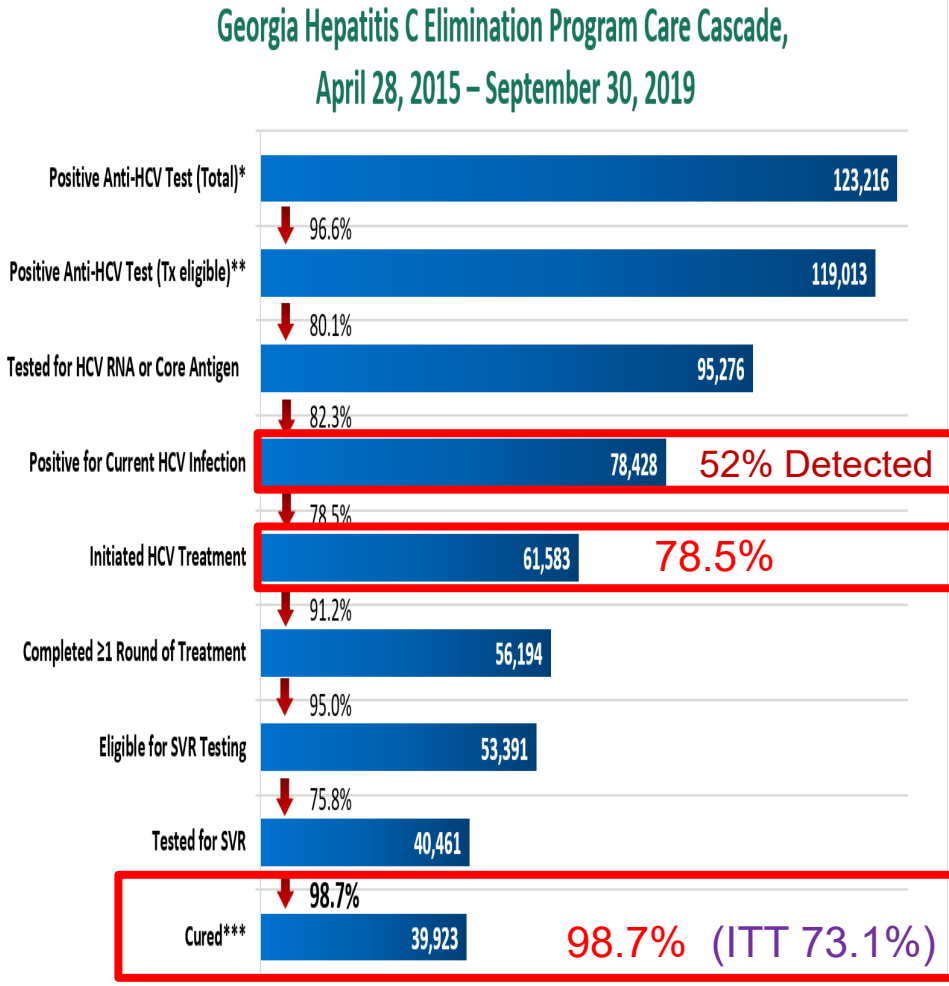
*Preliminary data

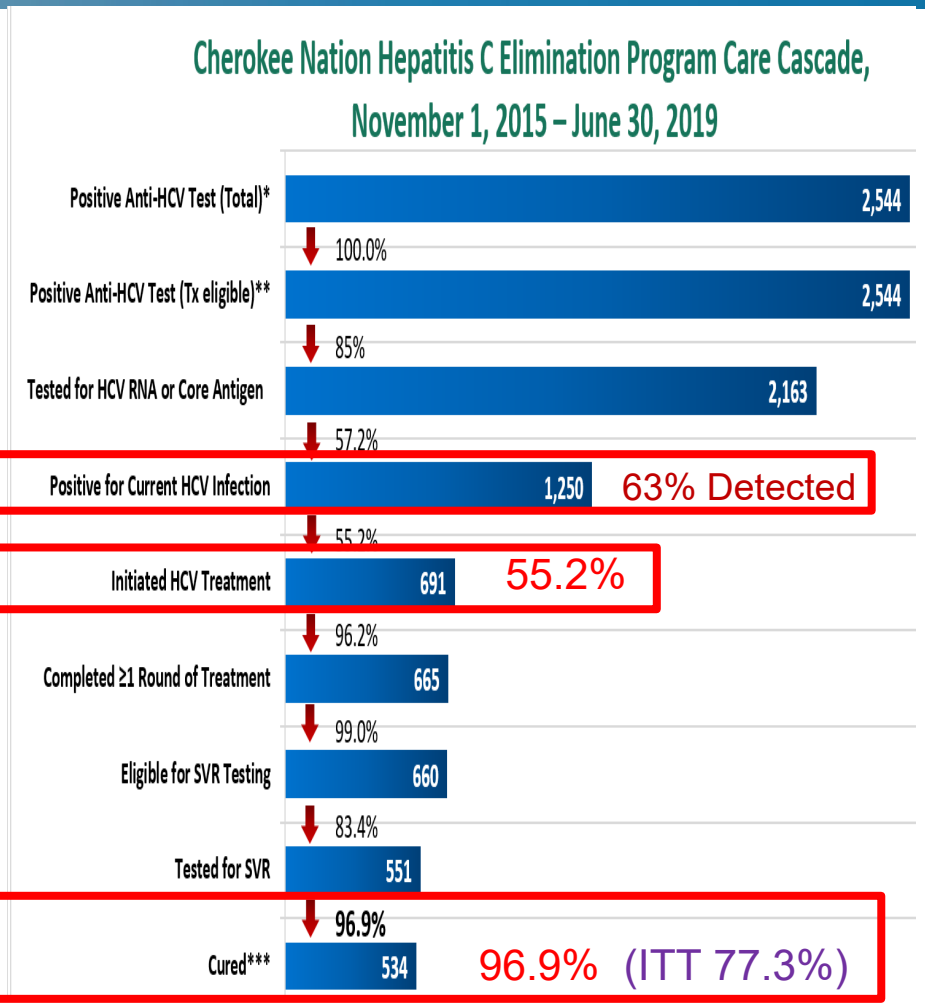
CNHS Progress Towards HCV Elimination Goals November 2015 - June 2019



Between November 1, 2015 and June 30, 2019, 98,155 individuals had a documented encounter with any department at the CNHS and 50,246 (51%) had an HCV antibody performed. 64,782 (66 %) individuals accessed a site where screening was offered and 85,395 (87%) accessed a primary care clinic

Macroelination vs Microelimination





Estimated HCV RNA (+): 150,000

Estimated RNA (+) 1,985

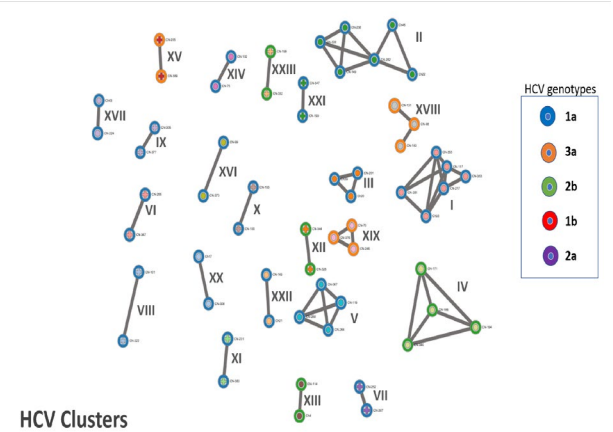
Challenges/Solutions: Screening, Treatment and Harm Reduction

49% of the target Population not screened

Resume RLTS

Expand to other areas: Optometry, MAT, etc.

GHOST



Treatment: Long wait for DAAs

Pilot project with onsite DAAs

Harm Reduction: Lack of SSP

SSP Bill TO BE PRESENTED IN 2020

SSP: Syringe Service Programs

Challenges/Solutions: Linkage to Care

Other Socio, Economic, Medical Priorities	Increase ***Patient Navigator*** force, Initiate ***Social Worker***
Incarceration	Budget for DAA Treatment increased HCV ProjectECHO initiated
Difficult to reach Patients/Doctors	***Home Telemedicine*** December 2019

Conclusions

- The CNHS HCV elimination program is based on universal screening, expansion of the primary care workforce through ProjectECHO and harm reduction interventions.
- Significant improvements in the detection and management of HCV infected individuals have been made but gaps still remain.
- Addressing these gaps is underway and will be crucial for HCV elimination to be achieved.